Meridian 1 and Succession Communication Server for Enterprise 1000

DPNSS1

Maintenance Guide

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About this document

This document applies to Meridian 1 Internet Enabled and Succession Communication Server for Enterprise (CSE) 1000 systems.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

The DPNSS1 Maintenance Guide is part of the suite of Nortel Networks technical publication (NTPs) designed specifically for DPNSS1 applications.

This guide defines the procedures required to maintain DPNSS1 links, and lists all relevant system error messages.

Who should use this document

This document is intended for individuals who maintain DPNSS1 networks.

How this document is organized

The DPNSS1 Maintenance Guide has been arranged in the following sections:

- *IDA status check and start-up* - describes the status check that is used to verify that an IDA link is working normally, and the procedures required to take the PRI and DCHI from a disabled to an operational state; lists and defines trunk maintenance commands and messages; lists and describes digital trunk maintenance (DTM) error messages, initialize (INI) error messages, link reset error messages, channel reset error messages, stop count error message, test messages reset errors, channel configuration error messages, and Clock Controller (DTC) error messages.

Note: The Integrated Digital Access (IDA) feature provides the hardware and software platform on the Meridian 1 for the support of DPNSS1 signaling protocols. The maintenance facilities and procedures are defined at the IDA level.

- *Circuit card replacement* - refers readers to the *DPNSS1: Installation Guide* (553-3921-200), where the relevant information is found.

IDA status check and start-up

Contents

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IDA status check

The status check outlined in Table 1 on page 10 is used to verify that an IDA link is working normally. It assumes the PRI and DCHI are properly installed (for example, correctly cabled) and operational. If the IDA status is not as shown in the steps below, complete the check and proceed to IDA fault clearing procedures.

Once all problems are cleared, go to IDA start-up.

Table 1
IDA status check (Part 1 of 2)

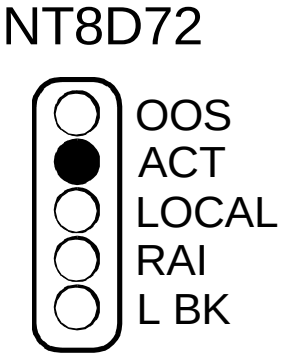
Step	Action	Response
1	Check the status LEDs on PRI cards	For normal operation, only the green ACT LED is lit. 
2	Note whether any other LED is lit and continue with the status check	
3	Check the LED on the DCHI faceplate.	If the LED is lit, the D-channel is disabled.
4	Check the status of all DCHI ports using: LD 75 STAT DDSL	The DCHI status should be ENBL ACTIVE (DCHI enabled, and all configured channels are normally enabled)

Table 1
IDA status check (Part 2 of 2)

Step	Action	Response
5	Check the status of PRIs using: LD 75 STAT DDCS STAT DDCS n	Sample response: DDCS 003 ENBL DDCS 004 ENBL 32 UNEQ 30 DSBL
6	Check to assure the following IDA cables are connected correctly: • PRI to DCHI cable • 2Mb/s transmission cable from NT8D72BA to DSX (the digital cross connect)	

IDA start-up

Table 2 on page 12 provides the steps required to take the PRI and DCHI from a disabled to an operational state.

Table 2
DASS2 start-up (Part 1 of 2)

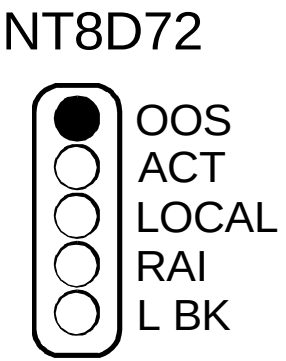
Step	Action	Response
1	Check the status of PRI cards	The PRI shown is disabled 
2	Enable PRI using: LD 75 ENL DDCS l(loop)	 ENBL
3	Enable the DCHI: LD 75 ENL DDSL n	 ENBL IDLE (DCHI enabled, but all channels are disabled)

Table 2
DASS2 start-up (Part 2 of 2)

Step	Action	Response
4	Enable the LAP protocols for each real and virtual channel configured on the DPNSS1 link:	
	LD 75	
	STRT n	ENBL STARTING (the configured LAP protocols for each real and virtual channel configured on the DPNSS1 link are being enabled)
	Both ends of the link should be started within 5 minutes of each other.	ENBL ACTIVE (the configured LAP protocols for each real and virtual channel configured on the DPNSS1 link are enabled)

IDA trunk maintenance commands and messages

IDA trunk maintenance is performed using LD 75. Table 3 on page 13 is a general list of commands and status messages available in LD 75. Table 4 on page 14, Table 5 on page 15, and Table 6 on page 15 describe the various IDA trunk maintenance messages in LD 75.

Table 3
IDA trunk maintenance commands available in LD 75 (Part 1 of 2)

Command	Description
ENL DDSL n	Enable DCHI, port n
ENL DDCS l	Enable PRI loop l
ENL DTRC l c	Enable real channel (loop, channel)
DIS DDSL n	Disable DCHI, port n
DIS DDCS l	Disable PRI loop n
DISI DDCS l	Disable all channels, loop l as they become idle. The message “OK DISABLING” is displayed and further commands may be entered. Message DTM055 is displayed when all channels are disabled.

Table 3
IDA trunk maintenance commands available in LD 75 (Part 2 of 2)

Command	Description
DIS DTRC l c	Disable real digital channel (loop, channel}
STAT DDSL	Give status of entire DCHI
STAT DDSL n	Give status of DCHI port n
STAT DDCS	Give status of all PRI loops
STAT DDCS l	Give status of PRI loop l, and a count of the number of channels in each state
STAT DTRC l c	Give status of real digital channel (loop, channel)
STRT n	Start DCHI, port n. The message “OK STARTING” is displayed and further commands may be entered. Message DTM301 is displayed when the link is started successfully.
CDSP	Clear the display
CMIN u	Clear the minor alarm for customer u

Table 4
IDA trunk maintenance messages available in LD 75 — DCHI

Message	Description
DSBL NOT RESPONDING	The D Channel Handler is disabled and does not respond to a read/write test. All channels are disabled.
DSBL RESPONDING	The D Channel Handler is disabled. All channels are disabled.
ENBL IDLE	The D Channel Handler is enabled, but all channels are disabled
ENBL STARTING	The D Channel Handler is enabled, but all channels are being enabled
ENBL ACTIVE	The D Channel Handler is enabled, and all channels are enabled

Table 5
IDA trunk maintenance messages available in LD 75 — PRI2 card

Message	Description
DSBL NOT RESPONDING	The Network Pack is disabled and does not respond to a read/write test.
DSBL RESPONDING	The Network Pack is disabled.
ENBL	The Network Pack is enabled

Table 6
IDA trunk maintenance messages available in LD 75 — B-channels

Message	Description
UNEQ	Not configured
DSBL	Disabled
ENBL IDLE	Enabled and available for a call
ENBL BUSY	In use for a call
ENBL MBSY	Maintenance busy; that is, unusable
DSBL RST, ENBL IDLE RST, ENBL BUSY RST, ENBL MBSY RST	Being reset; that is, unusable

Synchronization

Synchronization between switches must always be provided in the case of DPNSS1 trunks, and every digital network must be individually checked for clocking configurations.

QPC775 Clock Controller cards have to be fitted in Meridian 1 system Options 21/21E, 51/51C, and 61/61C, and machine types ST/STE and NT, when a DPNSS1 link is installed. On Meridian 1 system Options 71 and 81/81C, two Clock Controller cards are used for synchronization. On Option 81/81C systems, and on systems supporting EuroISDN applications, the QPC775E Clock Controller card is required.

In a stand-alone switch or one with only analogue networking, the Clock Controller is not normally fitted. On Meridian 1 system Options 51/51C and 61/61C, card slots are dedicated for the Clock Controller. On the Meridian 1 system Option 21/21E the Clock Controller must be placed in one of the first four network positions.

In a dual processor system, the synchronization link must be connected to both Clock Controllers to allow for change over. The Clock Controller(s) can be connected to two synchronization links, the second being programmed to provide the system clocking if the first choice fails.

If the Meridian 1 is to provide clocking over a link, then there are no additional configuration changes required on the Meridian 1 system. If the Meridian 1 is to be synchronized to a particular link, then the PRI must be physically connected to the Clock Controller of the Meridian 1.

Clock controller maintenance commands

Clock Controller maintenance is performed using LD 60. Table 7 on page 16 provides a general list of commands and status messages available in LD 60.

Table 7
Clock controller commands available in LD 60 (Part 1 of 2)

Command	Description
DIS CC N	Disable specified system clock controller
DSYL L	Disables remote alarm processing for loop L
ENL CC N	Enable specified system clock controller
ENYL L	Enables remote alarm processing for loop L

Table 7
Clock controller commands available in LD 60 (Part 2 of 2)

Command	Description
EREF	Enables automatic switching and recovery of primary and secondary reference clocks when loops associated with these clocks are automatically enabled
MREF	Disables automatic switching and recovery of the primary and secondary reference clocks when loops associated with these clocks are automatically disabled or in local alarm
SSCK N	Provides status of system clock N. Indicates the active controller as well as active primary or secondary reference-clock source or free run.
SWCK	Switches the system clock from the active to the standby clock. The reference-clock source remains unchanged.
TRCK xxx	Set clock-controller tracking. Where xxx represents one of the following mnemonics: **PCK** track primary clock **SCK** track secondary clock **FRUN** free-run mode

Resident fault monitoring

The software currently monitors the alarms associated with a DPNSS1 link. These alarms are described in Table 8 on page 18.

Table 8
Alarms

Alarm	Description
TBF	Transmit Buffer Full
FAE	Frame Alignment Error
HER	High Error Rate
TSF	Transmit Signaling Failure
AIS	Alarm Indication Signal
LOI	Loss of Input
DAI	Distant Alarm Indication

There are two criteria:

- An alarm is present for more than the “persistence time” defined for that alarm.
- An alarm occurs more times than the “reset count threshold” within the period defined by the “monitor time” for that alarm.

In either case, the link is stopped, and a minor alarm is raised. When all alarms are cleared, the link is restarted. Various diagnostic messages are issued for alarms — please refer to “Diagnostic error messages” on page 21.

To support BTNR 188, four alarms are mandatory:

- Bit errors of worse than 10^{-3}
- Alarm Indication Signal
- Loss of Frame Alignment
- Loss of Signal

Hardware supported alarm summary

The following list provides a summary of all alarms supported by hardware.

- Loss of Frame Alignment
- Frame Bit Error
- Alarm Indication Signal
- Loss of Signal
- Remote Alarm Indication
- Bipolar Violation
- CRC - 4
- Los of Multiframe Align
- Slip Error

Setting alarm thresholds

LD 74 defines the parameters of the alarm thresholds. Table 9 on page 21 shows the alarm condition thresholds.

LD 74 – Alarm threshold values

Prompt	Response	Description
CNTL	YES/(NO)	Display the following prompts
ALRM	TBF PP MM CC FAE PP MM CC HER PP MM CC TSF PP MM CC AIS PP MM CC LOI PP MM CC DAI PP MM CC	Enter the desired persistence time (PP), monitor time (MM), and repeat count threshold (CC) for one of the seven types of alarms The alarm condition thresholds are shown in the table that follows.
CNTR	0- 255 (CRT) (TMT) (SCT)	Only prompted if CNTL=YES. Enter the desired threshold for one of the three counters in the range 0-254. If 255 is entered, the threshold is set to infinity. The defaults are: CRT (channel reset threshold) 120 TMT (test message threshold) 50 SCT (stop count threshold) 20

Table 9
Alarm condition thresholds

Alarm Mnemonic	PP	MM	CC
TBF	0-15 secs (5)	0-24 hrs (0)	0-15 (1)
FAE	0-15 secs (2)	0-24 hrs (1)	0-15 (4)
HER	0-15 mins (1)	0-24 hrs (1)	0-15 (10)
TSF	0-15 secs (0)	0-24 hrs (0)	0-15 (0)
AIS	0-15 mins (1)	0-24 hrs (1)	0-15 (4)
LOI	0-15 secs (0)	0-24 hrs (0)	0-15 (0)
DAI	1-15 mins (1)	0-24 hrs (1)	0-15 (5)

Diagnostic error messages

The following sections list the error messages which are issued for diagnostic alarms.

Digital Trunk Maintenance (DTM) error messages (LD 75)

The DTM messages indicate problems with digital trunks detected by the Digital Trunk Maintenance program (LD 75)..

Table 10
DTM error messages (Part 1 of 8)

DTM error code	Description	Action to take
DTM000	Program Identifier	
DTM001	Too many characters	Check input and re-enter
DTM002	Invalid character input	Check input and re-enter
DTM003	Invalid command	Check input and re-enter
DTM004	Wrong number of parameters	Check input and re-enter
DTM005	Invalid parameter	Check input and re-enter

Table 10
DTM error messages (Part 2 of 8)

DTM error code	Description	Action to take
DTM006	Invalid customer number	Check input and re-enter
DTM020	Pack is not configured	Check input and re-enter; If DTM020 is still output, check that the DTCS and DTSL are configured
DTM021	Pack number is not specified	Check input and re-enter
DTM022	Pack number is out of range	Check input and re-enter
DTM023	Pack is already enabled	
DTM024	Pack does not respond	Check that the pack switch is enabled and properly configured
DTM025	Loop is not a DTCS/DDCS	Check input and re-enter; If DTM025 is still output, check the configuration record
DTM026	DTSL/DDSL is disabled	
DTM027	Signaling link is not available	Perform STAT on DTSL; if in service or enabled, then the far end of link is suspect
DTM030	Command is not allowed	
DTM040	Message input failed	Check that sufficient digital trunk I/O buffers are configured
DTM042	DTCS/DDCS cannot be disabled while its DTSL/DDSL is still enabled	DTSL must be disabled before DTCS is disabled
DTM043	Not a DTSL/DDSL	Check input and re-enter
DTM047	DTCS/DDCS is disabled	
DTM048	Channel is already disabled	

Table 10
DTM error messages (Part 3 of 8)

DTM error code	Description	Action to take
DTM049	A previous DISI has not been completed	Wait and re-enter DISI when current one has ended
DTM050	Message not defined by MSG	Format the message using MSG command first
DTM051	Invalid byte	Check input and re-enter
DTM052	Invalid channel number	Check input and re-enter
DTM053	Peripheral signaling card is disabled	Enable peripheral signaling card and re-enter command
DTM054	Action not successful	
DTM055	DISI complete	
DTM300 n	DTSL/DDSL n has been stopped and is in the ENBL IDLE state	
DTM301 n	DTSL/DDSL n has been started and is in the ENBL ACTIVE state	
DTM302 n	DTSL/DDSL n has been stopped and is in the ENBL ACTIVE state but has all the channels in the disabled state	Check the switch settings on the pack. If they are correct, check that the far end has started. If accompanied by a DTM334 message, then check the configuration at both ends of the link.
DTM303 n	DTSL/DDSL n has failed to start and is still in the ENBL STARTING state but	Suspect faulty DCHI; may be accompanied by a major alarm

Table 10
DTM error messages (Part 4 of 8)

DTM error code	Description	Action to take
DTM304 n f	DTSL/DDSL n has failed its memory test while being enabled and remains in the disabled state, with "f being one of the following reasons for failure: 0 — test not completed in time 1 — ROM check failed 2 — RAM check failed 4 — HDLC test failed	Suspect faulty DCHI; may be accompanied by a major alarm
DTM305 n	DTSL/DDSL n is undergoing memory test, command ignored	Wait until the memory test has ended and then re-issue the command
DTM306 n	DTSL/DDSL n being started, command ignored	Wait until the command has ended and the re-issue the command
DTM307 n	DTSL/DDSL n being stopped, command ignored	Wait until the command has ended and the re-issue the command
DTM308 n	Five minutes have elapsed since DTSL/DDSL n was started and placed in the active state, and no channel reset acknowledgments have been received	Check that the far end has started
DTM309 n	DTSL/DDSL n has failed to start; it will return to the idle state	Attempt a reset; If the fault persists, suspect a faulty DCHI; may be accompanied by a major alarm
DTM310 n z (see note)	Alarm z has been detected by DTSL/DDSL n and it has exceeded its persistence limit	Accompanied by a major alarm when <alarm> = 1-5; accompanied by a minor alarm when <alarm> = 6

Table 10
DTM error messages (Part 5 of 8)

DTM error code	Description	Action to take
DTM311 n z (see note)	Alarm z has been detected by DTSL/DDSL n but has not exceeded its persistence limit	Accompanied by a major alarm
DTM312 n z (see note)	Alarm repeat count threshold has been exceeded for alarm z on DTSL/DDSL n	Accompanied by a major alarm
DTM313 n	Stop count threshold has been exceeded for DTSL/DDSL n	May be accompanied by a major alarm
DTM314 n	DTSL/DDSL n has been disabled	
DTM315 n	DTSL/DDSL n has failed to respond to numerous “stop” messages and therefore will be disabled instead	Attempt a reset; If the fault persists, suspect a faulty DCHI; accompanied by a major alarm
DTM316 n z (see note)	Alarm z has been detected by DTSL/DDSL n; DTSL/DDSL n is not in the active state	
DTM317 n	DTSL/DDSL n does not respond	Check switch settings on DCHI pack
DTM318 n	DTSL/DDSL n has been enabled	
DTM319 n	DTSL/DDSL n is about to be started	
DTM320 n c	Real channel c on DTSL/DDSL n has failed to reset and remains in the disabled state	If multiple DTM320 messages occur, then suspect one of the following: • link fault (check if an alarm is present) • faulty DCHI • far end signaling pack faulty
DTM322 n c	Real channel c on DTSL/DDSL n has been reset	

Table 10
DTM error messages (Part 6 of 8)

DTM error code	Description	Action to take
DTM324 n	Channel reset threshold exceeded for DTSL/DDSL n	Suspect one of the following • link fault (check if an alarm is present) • faulty DCHI • far end signaling pack faulty
DTM325 n	DTSL/DDSL n is being reset	
DTM326 n	DTSL/DDSL n has been reset	
DTM329 n c	Channel is not in a state where it can be reset	
DTM330 n	Invalid command for the state that DTSL/DDSL n is in	Check the DTSL status and re-enter
DTM331 n	Test message threshold has been exceeded for DTSL/DDSL n	If fault persists, suspect a faulty DCHI
DTM332 n	A level 3 to level 2 signaling test has failed for DTSL/DDSL n	Link will be reset if this error persists
DTM335 n mi	DTSL/DDSL n has failed to a message sent to it; mi is the message indicator code for the message	If issued after a command has been entered, then repeat the command; If error continues, suspect a faulty DCHI
DTM336 n mi	An attempt to send a message to DTSL/DDSL n has failed; mi is the message indicator code for the message. ***Note:*** A spurious DTM335 is likely to follow	
DTM337 n li mi	Invalid input from DTSL/DDSL n; l is the length indicator, mi is the message indicator code for the message	

Table 10
DTM error messages (Part 7 of 8)

DTM error code	Description	Action to take
DTM338 n	DTSL/DDSL n cannot be disabled because the DTCS/DDCS is disabled	DTCS(s) must be enabled first
DTM339 n x	Five minutes have elapsed since DTSL/DDSL n was started and placed in the active state; some channel reset acknowledgments have bee received, but “x” channels fail to start	
DTM340 n	Although DTSL/DDSL n is active according to level 3, a report has been received from level 2 indicating the link is idle	If fault persists, suspect a faulty DCHI
DTM341 n	Although DTSL/DDSL n is idle according to level 3, a report has been received from level 2 indicating the link is starting or active	If fault persists, suspect a faulty DCHI
DTM342 n c p	Level 2 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 3; “p” indicates one of the following problems: 0 — channel number out of range 1 — channel not configured 4 — channel not active 5 — li is incorrect 6 — already configured 7 — mi is out of range	Check the state and configuration of the channel

Table 10
DTM error messages (Part 8 of 8)

DTM error code	Description	Action to take
DTM344 n c p	Level 2 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 3; “p” indicates one of the following problems: 0 — channel number out of range 1 — channel not configured 2 — type (DPNSS1) is wrong 3 — side (A/B) is wrong 4 — channel is not active	Check the channel configuration at the far end. ***Note:*** A DTM344 with a “p” = 3 is only printed once after the STRT command is assigned, when the side of a DTSL is wrongly configured; DTM334 messages with other values for “p” printed every time that a discrepancy is found
DTM346 n c p	Level 3 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 2; “p” indicates one of the following problems: 2 — type (DPNSS1) is wrong 3 — side (A/B) is wrong	Level 3 will attempt to update level 2
DTM348 n	All alarms cleared on DTSL/DDSL n	
DTM350	Must switch reference clock before disabling ***Note:*** for DTM310, DTM311, DTM312, and DTM316 the alarm “z” is one of the following code numbers: 0 — TBF (Transmit Buffer Full) 1 — FAE (Frame Alignment Error) 2 — HER (High Error Rate) 3 — TSF (Transmit Signal Failure) 4 — AIS (Alarm Indicator Signal) 5 — LOI (Loss of Input) 6 — DAI (Distant Alarm Indication)	

Initialize (INI) error messages

When the system is initialized, all network cards are tested for read/write response, and all DCHIs are tested for read/write response and stuck interrupts.

If initialization follows a system reload or is manually invoked, then all links are brought into service (resembling a link reset). If initialization occurs for any other reason, then the links which are not disabled are reset. All calls that were established before initialization are rebuilt. Table 11 on page 29 defines the error messages that may be issued during a system initialization.

Table 11
INI messages

Message	Description
INI003 (fault codes 90 - 12F)	Network pack does not respond
INI009 (fault codes 90 - 12F)	The network pack does not respond
INI100	DCHI does not respond from active CPU
INI101	DCHI does not respond from standby CPU
INI1006	Unequipped pack is responding

Link reset error messages

When certain faults are detected, the DCHI is reset. This involves taking the link out of service (so that the DCHI is disabled) and then bringing it back into service. This sequence may fail, leaving the link disabled or idle. Table 12 on page 29 defines link reset messages.

Table 12
Link reset messages

Message	Description
DTM320 n c	Real channel c on DTSL/DDSL n has failed to reset and remains in the disabled state

Channel reset error messages

A channel may be reset if clearing a call is difficult each time that a channel is enabled and if the channel buffer on the DCHI card overflows. If a channel is disabled, any call in progress is force-disconnected, and the DCHI is instructed to reset the associated Link Access Protocol. The channel is enabled when the reset is completed.

A channel reset may also be initiated by the DCHI, if there is difficulty in communicating with the far end.

If the number of channel resets since midnight exceeds the value defined as the "channel reset threshold" (CRT) defined in LD 74, then the link is reset and a minor alarm is raised. CRT may be set to infinity, in which case the link will not be reset due to channel reset failure.

Table 13 on page 30 defines the error messages which may be generated for a channel reset.

Table 13
Channel reset error messages

Message	Description
DTM325 n	DTSL/DDSL n is being reset
DTM326 n	DTSL/DDSL n has been reset

Stop count error message

A count is kept of the number of times since midnight that a link is stopped due to an alarm or link reset. If this count exceeds the "stop count threshold" (SCT) defined in LD 74, then the link is disabled. It remains disabled until it is manually brought back to service. SCT may be set to infinity, in which case the link will not be reset due to excessive stopping.

Table 14 on page 31 defines the error messages which may be generated for a stop count reset.

Table 14
Stop count message

Message	Description
DTM313 n	Stop count threshold has been exceeded for DTSL/DDSL n

Test messages reset errors

Test messages are sent to all DCHIs every 30 seconds in order to check the level 3/level 2 interface. The test patterns should be echoed back unchanged. If the number of failed tests since midnight exceeds the “test message threshold” (TMT) defined in LD 74, then the link is reset and a minor alarm is raised. TMT may be set to infinity, in which case the link will not be reset due to test failure.

A check is also performed every 30 seconds on the DCHI states as read by the hardware and software. If there is a difference in the reading, then the link is reset and a minor alarm raised.

Table 15 on page 31 defines the error messages which may be generated for test messages reset:

Table 15
Test messages reset errors

Message	Description
DTM331 n	Test message threshold has been exceeded for DTSL/DDSL n
DTM332 n	A level 3 to level 2 signaling test has failed for DTSL/DDSL n

Channel configuration error messages

Each time that a DCHI is enabled, it is informed of the configuration of its Link Access Protocols. If a discrepancy between the hardware and software is detected during call processing, the software attempts to correct configuration. Diagnostic messages are generated for these faults.

If the software cannot send a message to the DCHI because no output buffer is available, a diagnostic message is generated. If the DCHI cannot send a message to the software because an input buffer is not available, no immediate message is sent. Both conditions are recorded in traffic printouts.

Input messages received by the software are verified that the length is consistent with the message type. A diagnostic message is generated for any discrepancy. Table 16 on page 32 defines channel configuration error messages.

Table 16
Channel configuration error messages

Message	Description
DTM342 n c p	Level 2 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 3; “p” indicates one of the following problems: 0 — channel number out of range 1 — channel not configured 4 — channel not active 5 — li is incorrect 6 — already configured 7 — mi is out of range
DTM344 n c p	Level 2 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 3; “p” indicates one of the following problems: 0 — channel number out of range 1 — channel not configured 2 — type (DPNSS1) is wrong 3 — side (A/B) is wrong 4 — channel is not active
DTM346 n c p	Level 3 has detected a discrepancy in the configuration of real channel c on DTSL/DDSL n when a message was sent from level 2; “p” indicates one of the following problems: 2 — type (DPNSS1) is wrong 3 — side (A/B) is wrong

Clock Controller (DTC) error messages (LD 60)

The Digital Trunk Clock Controller (DTC) error messages in LD 60 indicate problems with the Clock Controllers. They are listed in Table 17 on page 33.

Table 17
Clock controller status and error messages

Command	Description
DTC001	Clock controller tracking on primary source loop.
DTC002	Clock controller tracking on secondary source loop.
DTC003	Clock controller cannot be accessed.
DTC004	Clock controller indicates clock-aging error.
DTC005	Reference clock switched to secondary source from primary.
DTC006	Reference clock switched to free-run mode from secondary or primary.
DTC007	Active reference clock is set to re-track primary.
DTC008	Active reference is free run or the clock controller cannot be accessed.
DTC009	Clock controller has been switched.
DTC010	Universal asynchronous receiver/transmitter (UART) error is detected.
DTC011	Clock control self-test failed; error exists.
DTC012	Clock control has reference-clock problem.
DTC013	Clock control has tracking problem.
DTC014	Clock control set to free run.
DTC015	Clock control set to secondary.
DTC016	Clock controller restored from free run or secondary to tracking on primary.
DTC017	Clock controller restored from free run to tracking on secondary.
DTC018	Cannot switch or restore to a reference clock because automatic reference-clock switching option is disabled.

Circuit card replacement

For detailed information on how to replace the 2Mb/s NT8D72 PRI card, the NTCK43 DPRI card, the NT5K35, the NT5K75 or the NT6D11AE DCHI card, and the QPC775 or NTRB53 Clock Controller, please refer to the *DPNSS1: Installation Guide* (553-3921-200).

Meridian 1 and Succession Communication Server for Enterprise 1000

DPNSS1

Maintenance Guide

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